

**Work Order ID 69587**

Thursday, May 12, 2011 2:28:45 PM



Page 1

Item ID: D212-664-201TRN

Accept



Setup Start



Revision ID:

Stop



Item Name: Crosstube Turning Detail

Start Date: 5/12/2011 Start Qty: 1.00



Cust Item ID:

Required Date: 6/2/2011 Req'd Qty: 1.00



Customer:

Reference:

Approvals: Process Plan: *[Signature]*

Date: 11-05-12

Tooling:

Date:

Run Start



QC:

Date:

SPC (Y/N):

Date:

Stop



| Sequence ID/<br>Work Center ID | Operation<br>Description | Set Up/<br>Run Hours | Tool ID | Tool # | Plan<br>Code | Accept<br>Qty | Reject<br>Qty | Reject<br>Number | Insp.<br>Stamp |
|--------------------------------|--------------------------|----------------------|---------|--------|--------------|---------------|---------------|------------------|----------------|
|--------------------------------|--------------------------|----------------------|---------|--------|--------------|---------------|---------------|------------------|----------------|

| Draw Nbr     | Revision Nbr |
|--------------|--------------|
| D212-664-241 | Rev D        |

100

0.00



Mori Seiki

MORI SEIKI CNC LATHE LARGE

Memo

0.00

Mori Seiki CNC Lathe Large

1-Fill tube with sand &amp; install plugs DT8534 on both ends as per Folio FA114

2-Turn first side as per Folio FA114

3-Blend transition lines only, \*\*do not sand whole tube\*\*:

\*Use mill bastard file, brush file repeatedly with file card.

\*Do not use sandpaper coarser than 320 grit.

*man. 11/05/18*

110

0.00



QC

QC1- Inspect dimensions to dimension sheet

Memo

0.00

Quality Control

*ark 11/05/18*

| W/O: |      | WORK ORDER CHANGES |    |      |     |                                     |                          |
|------|------|--------------------|----|------|-----|-------------------------------------|--------------------------|
| DATE | STEP | PROCEDURE CHANGE   | By | Date | Qty | Approval<br>Chief Eng /<br>Prod Mgr | Approval<br>QC Inspector |
|      |      |                    |    |      |     |                                     |                          |
|      |      |                    |    |      |     |                                     |                          |

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

| NCR: |      | WORK ORDER NON-CONFORMANCE (NCR) |                             |                                 |                |                           |                       |                          |
|------|------|----------------------------------|-----------------------------|---------------------------------|----------------|---------------------------|-----------------------|--------------------------|
| DATE | STEP | Description of NC<br>Section A   | Corrective Action Section B |                                 |                | Verification<br>Section C | Approval<br>Chief Eng | Approval<br>QC Inspector |
|      |      |                                  | Initial<br>Chief Eng        | Action Description<br>Chief Eng | Sign &<br>Date |                           |                       |                          |
|      |      |                                  |                             |                                 |                |                           |                       |                          |
|      |      |                                  |                             |                                 |                |                           |                       |                          |
|      |      |                                  |                             |                                 |                |                           |                       |                          |

**NOTE:** Date & initial all entries

**Work Order ID 69587**

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Item ID: D212-664-201TRN

Accept



Setup Start



Revision ID:

Stop



Item Name: Crosstube Turning Detail

Start Date: 5/12/2011 Start Qty: 1.00



Cust Item ID:

Required Date: 6/2/2011 Req'd Qty: 1.00



Customer:

Reference:

Run Start



Approvals: Process Plan: \_\_\_\_\_ Date: \_\_\_\_\_ Tooling: \_\_\_\_\_ Date: \_\_\_\_\_

Stop



QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

| Sequence ID/<br>Work Center ID | Operation<br>Description | Set Up/<br>Run Hours | Tool ID | Tool # | Plan<br>Code | Accept<br>Qty | Reject<br>Qty | Reject<br>Number | Insp.<br>Stamp |
|--------------------------------|--------------------------|----------------------|---------|--------|--------------|---------------|---------------|------------------|----------------|
|--------------------------------|--------------------------|----------------------|---------|--------|--------------|---------------|---------------|------------------|----------------|

120

0.00



MORI SEIKI CNC LATHE LARGE

0.00

Mori Seiki

Memo

Mori Seiki CNC Lathe Large

1-Turn second side as per Folio FA114

2-Blend transition lines only, \*\*do not sand whole tube\*\*:

\*Use mill bastard file, brush file repeatedly with file card.

\*Do not use sandpaper coarser than 320 grit.

3-Remove sand and plugs

4- scribe batch # and part # as per dwg

MAM-L 11/05/18

130

0.00



QC1- Inspect dimensions to dimension sheet

0.00

QC

Memo

Quality Control

MAM-L 11/05/18

| W/O: |      | WORK ORDER CHANGES |    |      |     |                                     |                          |
|------|------|--------------------|----|------|-----|-------------------------------------|--------------------------|
| DATE | STEP | PROCEDURE CHANGE   | By | Date | Qty | Approval<br>Chief Eng /<br>Prod Mgr | Approval<br>QC Inspector |
|      |      |                    |    |      |     |                                     |                          |
|      |      |                    |    |      |     |                                     |                          |

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

| NCR: |      | WORK ORDER NON-CONFORMANCE (NCR) |                             |                                 |                |                           |                       |                          |
|------|------|----------------------------------|-----------------------------|---------------------------------|----------------|---------------------------|-----------------------|--------------------------|
| DATE | STEP | Description of NC<br>Section A   | Corrective Action Section B |                                 |                | Verification<br>Section C | Approval<br>Chief Eng | Approval<br>QC Inspector |
|      |      |                                  | Initial<br>Chief Eng        | Action Description<br>Chief Eng | Sign &<br>Date |                           |                       |                          |
|      |      |                                  |                             |                                 |                |                           |                       |                          |
|      |      |                                  |                             |                                 |                |                           |                       |                          |
|      |      |                                  |                             |                                 |                |                           |                       |                          |

**NOTE:** Date & initial all entries

**Work Order ID 69587**

Thursday, May 12, 2011 2:28:45 PM

Page 3

Item ID: D212-664-201TRN

Accept

Setup Start

Revision ID:

Stop

Item Name: Crosstube Turning Detail

Start Date: 5/12/2011 Start Qty: 1.00

Cust Item ID:

Required Date: 6/2/2011 Req'd Qty: 1.00

Customer:




Reference:

Approvals: Process Plan: \_\_\_\_\_ Date: \_\_\_\_\_ Tooling: \_\_\_\_\_ Date: \_\_\_\_\_

Run Start

QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Stop

| Sequence ID/<br>Work Center ID   | Operation<br>Description   | Set Up/<br>Run Hours | Tool ID | Tool #          | Plan<br>Code | Accept<br>Qty | Reject<br>Qty | Reject<br>Number | Insp.<br>Stamp |
|--|--|----------------------|---------|-----------------|--------------|---------------|---------------|------------------|----------------|
| 140<br><br>QC<br>Quality Control                    | QC8- Inspect parts - second check<br><br>Memo  | 0.00<br>0.00         |         | B.A 11/05/19    |              | 1             | 6             |                  |                |
| 150<br><br>HandFXtube<br>Hand Finishing Crosstubes | Crosstubes Chemical Conversion<br><br>Memo<br>Chemical Conversion Coat as per within 24 hours of machining | 0.00<br>0.00         |         | SAA<br>11-05-19 |              | 0             |               |                  |                |
| 160<br><br>QC<br>Quality Control                  | QC3- Inspect Part Finish<br><br>Memo   | 0.00<br>0.00         |         | DP<br>11-5-19   |              |               |               |                  |                |

| W/O: |      | WORK ORDER CHANGES |    |      |     |                                     |                          |
|------|------|--------------------|----|------|-----|-------------------------------------|--------------------------|
| DATE | STEP | PROCEDURE CHANGE   | By | Date | Qty | Approval<br>Chief Eng /<br>Prod Mgr | Approval<br>QC Inspector |
|      |      |                    |    |      |     |                                     |                          |
|      |      |                    |    |      |     |                                     |                          |

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

| NCR: |      | WORK ORDER NON-CONFORMANCE (NCR) |                             |                                 |                |                           |                       |                          |
|------|------|----------------------------------|-----------------------------|---------------------------------|----------------|---------------------------|-----------------------|--------------------------|
| DATE | STEP | Description of NC<br>Section A   | Corrective Action Section B |                                 |                | Verification<br>Section C | Approval<br>Chief Eng | Approval<br>QC Inspector |
|      |      |                                  | Initial<br>Chief Eng        | Action Description<br>Chief Eng | Sign &<br>Date |                           |                       |                          |
|      |      |                                  |                             |                                 |                |                           |                       |                          |
|      |      |                                  |                             |                                 |                |                           |                       |                          |
|      |      |                                  |                             |                                 |                |                           |                       |                          |

**NOTE:** Date & initial all entries

**Work Order ID 69587**

Thursday, May 12, 2011 2:28:45 PM

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Item ID: D212-664-201TRN

Accept

Setup Start

Revision ID:

Stop

Item Name: Crosstube Turning Detail

Start Date: 5/12/2011 Start Qty: 1.00

Cust Item ID:

Required Date: 6/2/2011 Req'd Qty: 1.00

Customer:



Reference:

Approvals: Process Plan: \_\_\_\_\_ Date: \_\_\_\_\_ Tooling: \_\_\_\_\_ Date: \_\_\_\_\_

Run Start

QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Stop

| Sequence ID/<br>Work Center ID  | Operation<br>Description                                 | Set Up/<br>Run Hours | Tool ID | Tool # | Plan<br>Code | Accept<br>Qty | Reject<br>Qty | Reject<br>Number | Insp.<br>Stamp |
|---|--|----------------------|---------|--------|--------------|---------------|---------------|------------------|----------------|
| 170<br>  | Packaging  | 0.00                 |         |        |              |               |               |                  |                |
| Packaging   | <b>Memo</b>  | 0.00                 |         |        |              |               |               |                  |                |
| Packaging   | Identify and stock in kanban rack<br>Location: <u>46</u> |                      |         |        |              |               |               |                  |                |
| 180<br> | QC21- Final Inspection - Work Order Release              | 0.00                 |         |        |              |               |               |                  |                |
| QC  | <b>Memo</b>  | 0.00                 |         |        |              |               |               |                  |                |
| Quality Control   |  |                      |         |        |              |               |               |                  |                |

DP

11-5-19

11/5/19

MF

11-05-19

| W/O: |      | WORK ORDER CHANGES |    |      |     |                                     |                          |
|------|------|--------------------|----|------|-----|-------------------------------------|--------------------------|
| DATE | STEP | PROCEDURE CHANGE   | By | Date | Qty | Approval<br>Chief Eng /<br>Prod Mgr | Approval<br>QC Inspector |
|      |      |                    |    |      |     |                                     |                          |
|      |      |                    |    |      |     |                                     |                          |

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

| NCR: |      | WORK ORDER NON-CONFORMANCE (NCR) |                             |                                 |                |                           |                       |                          |
|------|------|----------------------------------|-----------------------------|---------------------------------|----------------|---------------------------|-----------------------|--------------------------|
| DATE | STEP | Description of NC<br>Section A   | Corrective Action Section B |                                 |                | Verification<br>Section C | Approval<br>Chief Eng | Approval<br>QC Inspector |
|      |      |                                  | Initial<br>Chief Eng        | Action Description<br>Chief Eng | Sign &<br>Date |                           |                       |                          |
|      |      |                                  |                             |                                 |                |                           |                       |                          |
|      |      |                                  |                             |                                 |                |                           |                       |                          |
|      |      |                                  |                             |                                 |                |                           |                       |                          |

**NOTE:** Date & initial all entries



# Picklist Print

Thursday, May 12, 2011 2:28:52 PM

Page 1

Work Order ID: 69587



Parent Item: D212-664-201TRN



Parent Item Name: Crosstube Turning Detail

Start Date: 5/12/2011

Required Date: 6/2/2011

Start Qty: 1.00

Required Qty: 1.00

Comments: IPP Rev:A 08-03-06 new issue DD verified by:ec  
IPP Rev B 08.04.02 Removed polish EC verified DD

| Component Item ID/<br>Item Name | Replacement<br>Item ID | Mfg/<br>Purch | Bin<br>Item | Primary<br>Location | Last<br>Location | Route<br>Seq ID | Unit of<br>Measure | Qty on<br>Hand | Qty per Kit | Total<br>Qty | Qty<br>Issued | Date<br>Issued | Status |
|---------------------------------|------------------------|---------------|-------------|---------------------|------------------|-----------------|--------------------|----------------|-------------|--------------|---------------|----------------|--------|
|---------------------------------|------------------------|---------------|-------------|---------------------|------------------|-----------------|--------------------|----------------|-------------|--------------|---------------|----------------|--------|

D6006-129

Manufactured

No

120

Each

27.3000

1

1



Crosstube Material

Location

Loc Qty

Loc Code

LG

27.3

23970

2

26550

15

29112

1.3

34690

3

38338

6

11/05/18 mm.l

| W/O: |      | WORK ORDER CHANGES |    |      |     |                                     |                          |
|------|------|--------------------|----|------|-----|-------------------------------------|--------------------------|
| DATE | STEP | PROCEDURE CHANGE   | By | Date | Qty | Approval<br>Chief Eng /<br>Prod Mgr | Approval<br>QC Inspector |
|      |      |                    |    |      |     |                                     |                          |
|      |      |                    |    |      |     |                                     |                          |

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

| NCR: |      | WORK ORDER NON-CONFORMANCE (NCR) |                             |                                 |                |                           |                       |                          |
|------|------|----------------------------------|-----------------------------|---------------------------------|----------------|---------------------------|-----------------------|--------------------------|
| DATE | STEP | Description of NC<br>Section A   | Corrective Action Section B |                                 |                | Verification<br>Section C | Approval<br>Chief Eng | Approval<br>QC Inspector |
|      |      |                                  | Initial<br>Chief Eng        | Action Description<br>Chief Eng | Sign &<br>Date |                           |                       |                          |
|      |      |                                  |                             |                                 |                |                           |                       |                          |
|      |      |                                  |                             |                                 |                |                           |                       |                          |
|      |      |                                  |                             |                                 |                |                           |                       |                          |

**NOTE:** Date & initial all entries

|   |                                  |
|---|----------------------------------|
| <b>DART AEROSPACE LTD</b>                                 | <b>Work Order:</b> 69587         |
| <b>Description:</b> Crosstube Assembly (205/212 High Aft) | <b>Part Number:</b> D212-664-241 |
| <b>Inspection Dwg:</b> D212-664-241 <b>Rev:</b> D         | <b>Page 1 of 1</b>               |

### FIRST ARTICLE INSPECTION CHECKLIST

| Inspection Sheet<br>Drawing Dimension | Tolerance | Actual<br>Dimension | Accept  | Reject | Method of<br>Inspection | Comments |
|---------------------------------------|-----------|---------------------|---------|--------|-------------------------|----------|
| SIDE A                                | 0.200     | +/-0.010            | 2.208   | ✓      | vern                    | JF-01    |
|                                       | R0.063    | +/-0.010            | 0.063   | ✓      | RG                      |          |
|                                       | 2.990     | +0.005/-0.000       | 2.993   | ✓      | vern                    | CNC-04   |
|                                       | 5.237     | +/-0.030            | 5.250   | ✓      | vern                    | JF-01    |
|                                       | 2.600     | +0.005/-0.000       | 2.605   | ✓      | vern                    | CNC-04   |
|                                       | 2.686     | +0.005/-0.000       | 2.691   | ✓      | vern                    |          |
|                                       | 2.770     | +0.005/-0.000       | 2.774   | ✓      | vern                    |          |
|                                       | 2.854     | +0.005/-0.000       | 2.857   | ✓      | vern                    |          |
|                                       | 2.938     | +0.005/-0.000       | 2.941   | ✓      | vern                    |          |
|                                       | 3.021     | +0.005/-0.000       | 3.025   | ✓      | vern                    | CNC-04   |
|                                       | 3.133     | +0.005/-0.000       | 3.136   | ✓      | vern                    |          |
|                                       | 3.179     | +0.005/-0.000       | 3.182   | ✓      | vern                    |          |
| SIDE B                                | 0.200     | +/-0.010            | 2.210   | ✓      | vern                    | JF-01    |
|                                       | R0.063    | +/-0.010            | 0.063   | ✓      | RG                      |          |
|                                       | 2.990     | +0.005/-0.000       | 2.993   | ✓      | vern                    | CNC-04   |
|                                       | 5.237     | +/-0.030            | 5.245   | ✓      | vern                    | JF-01    |
|                                       | 2.600     | +0.005/-0.000       | 2.605   | ✓      | vern                    | CNC-04   |
|                                       | 2.686     | +0.005/-0.000       | 2.691   | ✓      | vern                    |          |
|                                       | 2.770     | +0.005/-0.000       | 2.775   | ✓      | vern                    |          |
|                                       | 2.854     | +0.005/-0.000       | 2.857   | ✓      | vern                    |          |
|                                       | 2.938     | +0.005/-0.000       | 2.941   | ✓      | vern                    |          |
|                                       | 3.021     | +0.005/-0.000       | 3.026   | ✓      | vern                    | CNC-04   |
|                                       | 3.133     | +0.005/-0.000       | 3.137   | ✓      | vern                    |          |
|                                       | 3.179     | +0.005/-0.000       | 3.184   | ✓      | vern                    |          |
|                                       | 124.362   | +/-0.020            | 124.370 | ✓      | TAPZ                    | EC-11    |

|                               |                         |                              |     |
|-------------------------------|-------------------------|------------------------------|-----|
| <b>Measured by:</b> M.M. Venz | <b>Audited by:</b> J.A. | <b>Preliminary Approval:</b> | N/A |
| <b>Date:</b> 11/05/18         | <b>Date:</b> 11/05/19   | <b>Date:</b>                 | N/A |

| Rev | Date     | Change                           | Revised by | Approved |
|-----|----------|----------------------------------|------------|----------|
| A   | 05.04.27 | New Issue (P/O D412-664-201)     | KJ/JLM     |          |
| B   | 06.03.09 | Tolerance for 5.237 was +/-0.001 | KJ/JLM     |          |
| C   | 07.05.08 | Dwg Rev. updated                 | KJ/JLM     |          |
| D   | 10.08.03 | Dimension 124.362 was 124.36     | KJ         |          |

| W/O: |      | WORK ORDER CHANGES |    |      |     |                                     |                          |
|------|------|--------------------|----|------|-----|-------------------------------------|--------------------------|
| DATE | STEP | PROCEDURE CHANGE   | By | Date | Qty | Approval<br>Chief Eng /<br>Prod Mgr | Approval<br>QC Inspector |
|      |      |                    |    |      |     |                                     |                          |
|      |      |                    |    |      |     |                                     |                          |

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

| NCR: |      | WORK ORDER NON-CONFORMANCE (NCR) |                             |                                 |                |                           |                       |                          |
|------|------|----------------------------------|-----------------------------|---------------------------------|----------------|---------------------------|-----------------------|--------------------------|
| DATE | STEP | Description of NC<br>Section A   | Corrective Action Section B |                                 |                | Verification<br>Section C | Approval<br>Chief Eng | Approval<br>QC Inspector |
|      |      |                                  | Initial<br>Chief Eng        | Action Description<br>Chief Eng | Sign &<br>Date |                           |                       |                          |
|      |      |                                  |                             |                                 |                |                           |                       |                          |
|      |      |                                  |                             |                                 |                |                           |                       |                          |
|      |      |                                  |                             |                                 |                |                           |                       |                          |

**NOTE:** Date & initial all entries

| Item | Qty<br>-241 | Qty<br>-241B | Part Number    | Description   |
|------|-------------|--------------|----------------|---|
| 1    | X           |              | D212-664-241   | CROSSTUBE ASSEMBLY (205/212 HIGH AFT)   |
| 2    |             | X            | D212-664-241B  | CROSSTUBE ASSEMBLY (214 HIGH AFT)   |
| 3    | 1           | 1            | D6006-129      | CROSSTUBE   |
| 4    | 2           | 2            | D2940-1        | SUPPORT   |
| 5    | 4           | 4            | D3595-063-530  | RUBBER CUSHION  |
| 6    | 4           | 4            | MS21920-28     | CLAMP (OR MS21920-30)   |
| 7    | A/R         | A/R          | MAGNOBOND 6398 | ROCKWELL SPECIFICATION RBO-120-023<br>ADHESIVE (TEXTRON/BELL SPEC. 299-947-100,<br>TYPE II, CLASS 2 ADHESIVE) |

#### GENERAL NOTES:

- MATERIAL: MANUFACTURED FROM D6006-129  
FINISHED LENGTH = 124.362±0.020
- FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1  
PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2  
PAINT OUTSIDE PER DART QSI 005 4.2
- TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED.
- UNITS: INCHES UNLESS OTHERWISE NOTED.
- BREAK SHARP EDGES: 0.005 TO 0.010 MAX.
- IDENTIFICATION: SCRIBE DART PART NUMBER "D212-664-XXX" AND BATCH NUMBER ON INSIDE OF CUFF USING VIBRATING STYLUS.
- WEIGHT: D212-664-241 = 44.2 lbs (PER IIN-D212-664)  
D212-664-241B = 44.2 lbs (PER IIN-D212-664)
- PART IS SYMMETRIC ABOUT CENTERLINE.
- RUN CUTTER OFF PART. BLEND OUT EDGE LONGITUDINALLY. TRANSITION SHOULD BE SMOOTH.
- BEND PROGRESSIVELY WITH A MINIMUM OF 5 PASSES. MAXIMUM TUBE FLATTENING DUE TO BENDING IS 6% BASED ON O.D.
- LIQUID PENETRANT INSPECT OUTSIDE SURFACE OF CROSSTUBE PER QSI 038.
- INSTALL D2940-1 SUPPORT USING 0.03" TO 0.06" THICK LAYER OF MAGNOBOND 6398 TO THE SURFACE OF D2940-1 THAT WILL BE IN CONTACT WITH THE CROSSTUBE PER QSI 015. LET CURE FOR 12 HOURS AFTER INSTALLATION AND PRIOR TO PACKAGING.
- INSTALL MS21920-28 CLAMPS (OR -30) WITH D3595-063-530 RUBBER CUSHIONS TO SECURE THE D2940-1 SUPPORT ON TOP SIDE OF THE CROSSTUBE. ENSURE CLAMPS ARE OPPOSITE OF CROSSTUBE SUPPORT.
- EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES, NICKS, OR DENTS. DEFECTS UP TO 0.005" MAY BE BLENDED OUT LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE.
- TORQUE CLAMPS 80 TO 100 IN-LB. ENSURE AT LEAST 1.5 THREADS SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING.

SHOP COPY  
RETURN TO  
ENGINEERING  
UNCONTROLLED COPY  
SUBJECT TO AMENDMENT  
WITHOUT NOTICE  
WORK ORDER  
NO. 69587

11-05-12

DEO ATTACHED

RELEASED  
2009-10-29  
WJ

|            |   |   |              |
|------------|---|---|--------------|
| D          | REFORMAT/REVISE GENERAL NOTES/PART LIST; REORGANIZED VIEWS AND REFORMATTED DRAWING TO CURRENT STANDARDS; ADD -241B (ZN D4-2, B4-2); REMOVED REF & ADD TOLERANCES (ZN D8-3 & C4-3, C6-3 & A8-3); RELOCATED FLAG #6 PER PAR 08-046 (ZN A5-3); MOVED TURNING DETAIL & UPDATED TOLERANCE TO SHEET 4 | RF  | 09.09.30     |
| C          | REMOVE -1009 ABRASION STRIP; ADD MAGNOBOND 6398, CUSHION, REVERSE CLAMPS  | PH  | 07.03.06     |
| B          | ADD HOLES FOR COMPATABILITY WITH BHT/AA SKIDTUBES   | PH  | 05.02.04     |
| A          | NEW ISSUE   | PH  | 00.12.12     |
| REV.       | DESCRIPTION   | BY  | DATE         |
| DESIGN     | PH  | DART AEROSPACE LTD<br>HAWKESBURY, ONTARIO, CANADA   |              |
| DRAWN      | RF  |   |              |
| CHECKED    | PH  | DRAWING NO.   | REV. D       |
| MFG. APPR. | PH  | D212-664-241  | SHEET 1 OF 4 |
| APPROVED   | PH  | TITLE   | SCALE        |
| DE APPR.   | PH  | CROSSTUBE ASS'Y (205/212 HI AFT)  | NTS          |
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| W/O: |      | WORK ORDER CHANGES |    |      |     |                                     |                          |
|------|------|--------------------|----|------|-----|-------------------------------------|--------------------------|
| DATE | STEP | PROCEDURE CHANGE   | By | Date | Qty | Approval<br>Chief Eng /<br>Prod Mgr | Approval<br>QC Inspector |
|      |      |                    |    |      |     |                                     |                          |
|      |      |                    |    |      |     |                                     |                          |

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

| NCR: |      | WORK ORDER NON-CONFORMANCE (NCR) |                             |                                 |                |                           |                       |                          |
|------|------|----------------------------------|-----------------------------|---------------------------------|----------------|---------------------------|-----------------------|--------------------------|
| DATE | STEP | Description of NC<br>Section A   | Corrective Action Section B |                                 |                | Verification<br>Section C | Approval<br>Chief Eng | Approval<br>QC Inspector |
|      |      |                                  | Initial<br>Chief Eng        | Action Description<br>Chief Eng | Sign &<br>Date |                           |                       |                          |
|      |      |                                  |                             |                                 |                |                           |                       |                          |
|      |      |                                  |                             |                                 |                |                           |                       |                          |
|      |      |                                  |                             |                                 |                |                           |                       |                          |

**NOTE:** Date & initial all entries

8 7 6 5 4 3 2 1

12 13 15  
D2940-1 SUPPORT  
MS21920-28 CLAMP, 2X  
D3595-063-530 RUBBER CUSHION, 2X  
2 PL

AS-2

A

14.00 (-241)  
OR 13.75 (-241B)

D

D212-664-601  
BENT TUBE

SYM

D212-664-241/-241B  
ASSEMBLY DETAIL

D

*alo 69757*

DEO ATTACHED

**RELEASED**  
2009-10-28

12  
APPLY MAGNOBOND  
BETWEEN D2940-1 AND  
CROSSTUBE

D2940-1 SUPPORT, REF

13 15  
MS21920-28  
CLAMP, REF

D3595-063-530 RUBBER CUSHION  
UNDER CLAMP, REF

SECTION A-A D6-2  
SCALE 4X

|            |          |  |              |
|------------|----------|--|--------------|
| DESIGN     | PH       | DART AEROSPACE LTD   |              |
| DRAWN      | RF       | HAWKESBURY, ONTARIO, CANADA  |              |
| CHECKED    | PS       | DRAWING NO.  | REV. D       |
| MFG. APPR. | PS       | D212-664-241   | SHEET 2 OF 4 |
| APPROVED   | PS       | TITLE  | SCALE        |
| DE APPR.   | PS       | CROSSTUBE ASSY (205/212 HI AFT)  | NTS          |
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8 7 6 5 4 3 2 1

| W/O: |      | WORK ORDER CHANGES |    |      |     |                                     |                          |
|------|------|--------------------|----|------|-----|-------------------------------------|--------------------------|
| DATE | STEP | PROCEDURE CHANGE   | By | Date | Qty | Approval<br>Chief Eng /<br>Prod Mgr | Approval<br>QC Inspector |
|      |      |                    |    |      |     |                                     |                          |
|      |      |                    |    |      |     |                                     |                          |

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

| NCR: |      | WORK ORDER NON-CONFORMANCE (NCR) |                             |                                 |                |                           |                       |                          |
|------|------|----------------------------------|-----------------------------|---------------------------------|----------------|---------------------------|-----------------------|--------------------------|
| DATE | STEP | Description of NC<br>Section A   | Corrective Action Section B |                                 |                | Verification<br>Section C | Approval<br>Chief Eng | Approval<br>QC Inspector |
|      |      |                                  | Initial<br>Chief Eng        | Action Description<br>Chief Eng | Sign &<br>Date |                           |                       |                          |
|      |      |                                  |                             |                                 |                |                           |                       |                          |
|      |      |                                  |                             |                                 |                |                           |                       |                          |
|      |      |                                  |                             |                                 |                |                           |                       |                          |

**NOTE:** Date & initial all entries





| W/O: |      | WORK ORDER CHANGES |    |      |     |                                     |                          |
|------|------|--------------------|----|------|-----|-------------------------------------|--------------------------|
| DATE | STEP | PROCEDURE CHANGE   | By | Date | Qty | Approval<br>Chief Eng /<br>Prod Mgr | Approval<br>QC Inspector |
|      |      |                    |    |      |     |                                     |                          |
|      |      |                    |    |      |     |                                     |                          |

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

| NCR: |      | WORK ORDER NON-CONFORMANCE (NCR) |                             |                                 |                |                           |                       |                          |
|------|------|----------------------------------|-----------------------------|---------------------------------|----------------|---------------------------|-----------------------|--------------------------|
| DATE | STEP | Description of NC<br>Section A   | Corrective Action Section B |                                 |                | Verification<br>Section C | Approval<br>Chief Eng | Approval<br>QC Inspector |
|      |      |                                  | Initial<br>Chief Eng        | Action Description<br>Chief Eng | Sign &<br>Date |                           |                       |                          |
|      |      |                                  |                             |                                 |                |                           |                       |                          |
|      |      |                                  |                             |                                 |                |                           |                       |                          |
|      |      |                                  |                             |                                 |                |                           |                       |                          |

**NOTE:** Date & initial all entries



| W/O: |      | WORK ORDER CHANGES |    |      |     |                                     |                          |
|------|------|--------------------|----|------|-----|-------------------------------------|--------------------------|
| DATE | STEP | PROCEDURE CHANGE   | By | Date | Qty | Approval<br>Chief Eng /<br>Prod Mgr | Approval<br>QC Inspector |
|      |      |                    |    |      |     |                                     |                          |
|      |      |                    |    |      |     |                                     |                          |

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

| NCR: |      | WORK ORDER NON-CONFORMANCE (NCR) |                             |                                 |                |                           |                       |                          |
|------|------|----------------------------------|-----------------------------|---------------------------------|----------------|---------------------------|-----------------------|--------------------------|
| DATE | STEP | Description of NC<br>Section A   | Corrective Action Section B |                                 |                | Verification<br>Section C | Approval<br>Chief Eng | Approval<br>QC Inspector |
|      |      |                                  | Initial<br>Chief Eng        | Action Description<br>Chief Eng | Sign &<br>Date |                           |                       |                          |
|      |      |                                  |                             |                                 |                |                           |                       |                          |
|      |      |                                  |                             |                                 |                |                           |                       |                          |
|      |      |                                  |                             |                                 |                |                           |                       |                          |

**NOTE:** Date & initial all entries

|                             |  |               |  |               |                                |                           |              |
|-----------------------------|--|---------------|--|---------------|--------------------------------|---------------------------|--------------|
| DRAWING NO.<br>D212-664-241 | TITLE<br>CROSSTUBE ASSY (205/212 HI AFT) | REV. D        | DART AEROSPACE LTD.<br>ENGINEERING ORDER |               | D.E.O. NO.<br>D212-664-241-D-1 | SHEET NO.<br>SHEET 1 OF 2 | SCALE<br>NTS |
| DRAWN                       | CHECKED                                  | MFG. APPR.    | APPROVED                                 | DE APPR.      |                                |                           |              |
| DATE 11.04.07               | DATE 11.04.11                            | DATE 11.04.12 | DATE 11/04/12                            | DATE 11.04.12 |                                |                           |              |

**PURPOSE:**

ADD AN INSPECTION WINDOW TO UNDERSIDE OF CROSSTUBE.

**CHANGE:**

NOTES 2 OF SHEET 1 IS AMENDED AS FOLLOWS:

**IS:**

- 2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1  
PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2  
MASK UNDERSIDE OF CROSSTUBE AS SHOWN (HATCHED AREA) AND  
PAINT OUTSIDE PER DART QSI 005 4.2  
REMOVE MASKING AND APPLY CLEAR COAT

**WAS:**

- 2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1  
PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2  
PAINT OUTSIDE PER DART QSI 005 4.2

RELEASED  
2011-04-18

u/v 69787

| W/O: |      | WORK ORDER CHANGES |    |      |     |                                     |                          |
|------|------|--------------------|----|------|-----|-------------------------------------|--------------------------|
| DATE | STEP | PROCEDURE CHANGE   | By | Date | Qty | Approval<br>Chief Eng /<br>Prod Mgr | Approval<br>QC Inspector |
|      |      |                    |    |      |     |                                     |                          |
|      |      |                    |    |      |     |                                     |                          |

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

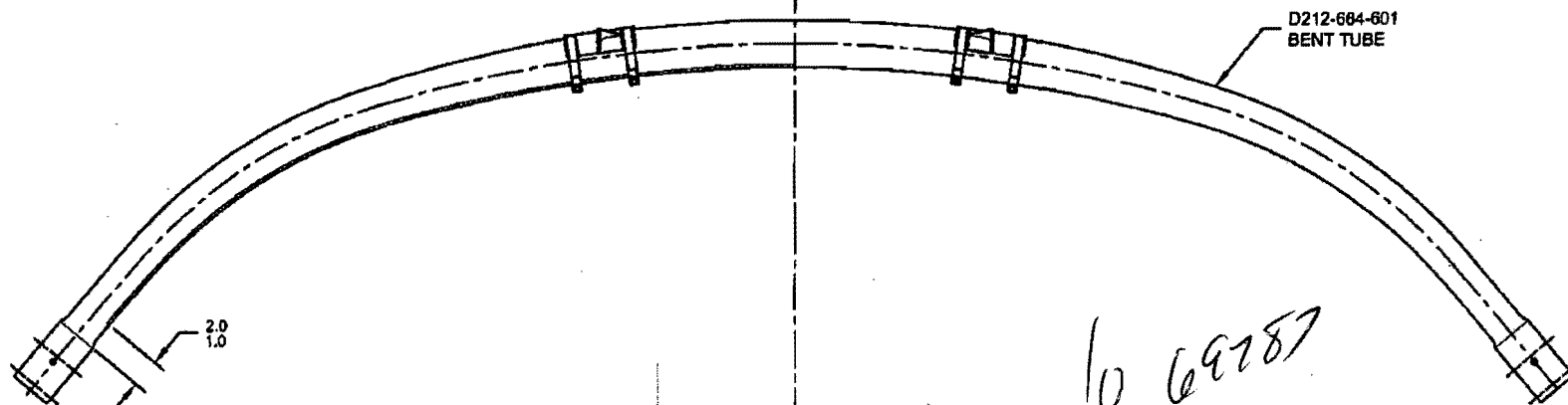
| NCR: |      | WORK ORDER NON-CONFORMANCE (NCR) |                             |                                 |                |                           |                       |                          |
|------|------|----------------------------------|-----------------------------|---------------------------------|----------------|---------------------------|-----------------------|--------------------------|
| DATE | STEP | Description of NC<br>Section A   | Corrective Action Section B |                                 |                | Verification<br>Section C | Approval<br>Chief Eng | Approval<br>QC Inspector |
|      |      |                                  | Initial<br>Chief Eng        | Action Description<br>Chief Eng | Sign &<br>Date |                           |                       |                          |
|      |      |                                  |                             |                                 |                |                           |                       |                          |
|      |      |                                  |                             |                                 |                |                           |                       |                          |
|      |      |                                  |                             |                                 |                |                           |                       |                          |

**NOTE:** Date & initial all entries

|                             |  |                     |   |                                |                           |              |
|-----------------------------|--|---------------------|---|--------------------------------|---------------------------|--------------|
| DRAWING NO.<br>D212-664-241 | TITLE<br>CROSSTUBE ASSY (205/212 HI AFT) | REV. D              | <b>DART AEROSPACE LTD<br/>ENGINEERING ORDER</b> | D.E.O. NO.<br>D212-664-241-D-1 | SHEET NO.<br>SHEET 2 OF 2 | SCALE<br>NTS |
| DRAWN                       | CHECKED <i>CP</i>                        | MFG. APPR. <i>E</i> | APPROVED <i>MD</i>                              | DE APPR. <i>MD</i>             |                           |              |
| DATE 11.04.07               | DATE 11.04.11                            | DATE 11.04.12       | DATE 11/04/12                                   | DATE 11.04.12                  |                           |              |

**IS:**

**WAS:**

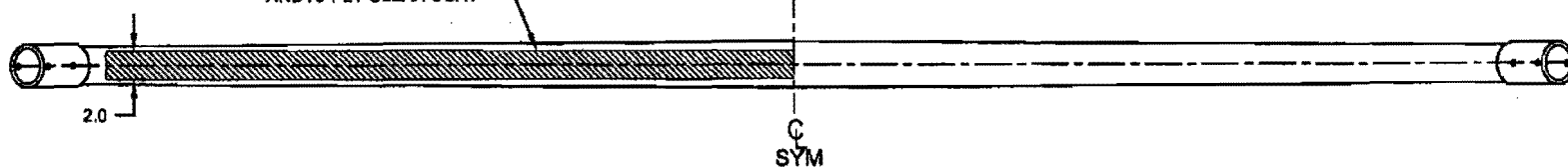


*u/o 69787*

**D212-664-241/-241B  
ASSEMBLY DETAIL**

**RELEASED**  
2011-04-18  
*MD*

MASK AREA PRIOR TO PAINTING,  
REMOVE MASKING AFTER PAINT  
AND APPLY CLEAR COAT



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| W/O: |      | WORK ORDER CHANGES |    |      |     |                                     |                          |
|------|------|--------------------|----|------|-----|-------------------------------------|--------------------------|
| DATE | STEP | PROCEDURE CHANGE   | By | Date | Qty | Approval<br>Chief Eng /<br>Prod Mgr | Approval<br>QC Inspector |
|      |      |                    |    |      |     |                                     |                          |
|      |      |                    |    |      |     |                                     |                          |

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

| NCR: |      | WORK ORDER NON-CONFORMANCE (NCR) |                             |                                 |                |                           |                       |                          |
|------|------|----------------------------------|-----------------------------|---------------------------------|----------------|---------------------------|-----------------------|--------------------------|
| DATE | STEP | Description of NC<br>Section A   | Corrective Action Section B |                                 |                | Verification<br>Section C | Approval<br>Chief Eng | Approval<br>QC Inspector |
|      |      |                                  | Initial<br>Chief Eng        | Action Description<br>Chief Eng | Sign &<br>Date |                           |                       |                          |
|      |      |                                  |                             |                                 |                |                           |                       |                          |
|      |      |                                  |                             |                                 |                |                           |                       |                          |
|      |      |                                  |                             |                                 |                |                           |                       |                          |

**NOTE:** Date & initial all entries